“Conqueror of Yellow Fever”:
Cooperation and Colonialism in the War Against Yellow Fever, 1878-1901

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In late September 1900, an American physician and researcher lay dying in Camp Colombia on the outskirts of Havana surrounded by Cuban and American doctors. The experience of dying from yellow fever was not a pleasant one.¹ Acute cases of yellow fever began with a pounding headache and muscle pains, and patients often prayed that the symptoms were simply due to heat or dehydration. Next, came a raging fever, with temperatures as high as 105°F, often accompanied with a loss of consciousness. Subsequent stages included jaundice which reflected widespread organ failure; at which point, a patient could still hope for a full recovery. Finally, the most distinct sign of yellow fever, the patient vomitted black coagulated blood (for which the Spanish derived their name for the disease *el vomito negro*). For Jesse Lazear, a spry thirty-four years of age, onset of fever symptoms was swift and he quickly became delirious, experiencing convulsions—he was dead within twelve days of exposure.² As his colleague Dr. James Carroll said of Lazear’s death, “such is yellow fever.”³ However, Lazear was unlike most other yellow fever victims—he intentionally infected himself with the disease.

Lazear’s experiments as a member of the Yellow Fever Commission captured the attention of contemporary historians and have continued to entice scholars since. In the late nineteenth century, as germ theory took hold, eradication of deadly infectious disease seemed now like a possibility. Yellow fever, however, remained a mystery and continued to plague

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communities. Out of this context emerged a U.S. military and government-backed campaign to identify and eliminate yellow fever. Unsurprisingly, the United States government turned to Cuba, where the disease was endemic, instructing the Yellow Fever Commission to work there.\(^4\) Indeed, by the late nineteenth century, yellow fever was overwhelmingly seen as “a product of Cuba, Mexico, and other tropical countries.”\(^5\) As such, identifying and eliminating yellow fever in Cuba guaranteed by proxy safety for the United States. The ultimate success of the commission was due in part to the foundation of yellow fever research already being conducted in Cuba by Cuban physicians.

The race to identify yellow fever etiology was an incredibly collaborative project with key doctors from both Cuba and the United States playing important roles. However, the wider colonial projects of the Spanish-American War (1898) and later the American occupation of Cuba (1898-1902) have largely influenced the historiography of the yellow fever research itself. Even within the Yellow Fever Commission, the presence of the U.S. military as a driving force makes it convenient to characterize the entire project as imperialistic. Despite these colonial underpinnings though, Cuban and American doctors largely viewed each other as equals and collaborated to identify yellow fever etiology and eradicate the pestilence. There was undoubtedly colonialism at play in the U.S. occupation of Cuba and the yellow fever research that followed. However, the work of the Yellow Fever Commission questions historiographic understanding of U.S./Cuban power dynamics by suggesting that yellow fever research and later eradication efforts were not simply a colonial project by the United States to assert scientific


dominance over Cuba. Rather they were a uniquely cooperative and successful example of transnational public health.

This essay examines the collaboration of both Cuban and American physicians in the face of imperial efforts, and in doing so builds on and challenges traditional constructions of power in the rich historiography of American colonialist intervention in Cuba. In her book *Imperial Hygiene: A Critical History of Colonialism, Nationalism, and Public Health* (2014), Alison Bashford proposed a framework that situates public health at the center of imperialism, arguing that it served as a form of governance for colonial powers. Scholars like Mariola Espinosa and Alexandra Stern have agreed with Bashford, further highlighting the link between colonialism and health. In fact, Espinosa argued compellingly that the United States invaded Cuba in part on the grounds of what she calls “colonial public health,” a process by which the economic and social interests of the colonizer are protected often through sanitary measures. Indeed some historians like Alexandra Stern have argued that yellow fever research in Cuba not only “coincided” with but were driven by what she deemed American “colonial and imperial projects” to assert domination in Latin America. Although few scholars have written about the collaboration in spite of colonialism in Cuba, my project builds on the work of historians like Steven Palmer who has made a similar argument about the cooperation between American colonial institutions and local physicians; in the case of Palmer, cooperation between the Rockefeller Foundation and Costa Rican doctors.

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The presence of yellow fever was not limited to Cuba in the nineteenth century. In fact, yellow fever was commonplace in the American South in the Antebellum years and spiked in the late nineteenth century. In 1853, a yellow fever outbreak killed roughly ten percent of the New Orleans population, decimating the city.\(^\text{10}\) Despite being the worst epidemic in the city’s history, yellow fever was, as Jo Ann Carrigan, a historian of public health, has written, “an almost annual summer visitor” for much of the nineteenth century.\(^\text{11}\) Various attempts to identify yellow fever death rates have found vastly different results, ranging from a twenty percent mortality rate to a fifty-five percent mortality rate.\(^\text{12}\) Regardless, the disease killed and was dreaded across the U.S. South. In addition to claiming lives, yellow fever generated panic in Southerners and effectively crippled the economy. Historian Kathryn Olivarius describes the eerie prelude to the annual yellow fever exodus from cities like New Orleans: “It was disquieting that everyone in [the] congregation renewed their baptismal vows and embraced at the end of the service as if for the last time.”\(^\text{13}\) Olivarius’s description suggests that American Southerners reflected on their own mortality in the face of yellow fever and found it necessary to flee the region if they were able to avoid the disease. This mass exodus coupled with labor priorities diverted towards caring for the sick and burying the dead meant that the 1878 yellow fever epidemic may have cost New Orleans alone one hundred million dollars.\(^\text{14}\) Espinosa outlines this impact succinctly, writing that “yellow fever had to be understood in order for the U.S. South to prosper.”\(^\text{15}\) Thus, yellow fever fundamentally reshaped social and economic life when it arrived in the American South.


\(^\text{13}\) Olivarius, *Necropolis*, 2.


In 1878, a particularly deadly epidemic swept the South. Roughly twenty thousand people died in the span of a few months in the American South alone, with six times that number being infected. Following the 1878 epidemic, politicians, newspapers, medical professionals, and the general public began urging American congressional action to meaningfully respond to the pestilence. In response, Congress authorized the nascent American Public Health Association (APHA) and the short-lived National Board of Health to convene an investigatory commission in 1879. However, the commission found little consensus on etiology and ultimately agreed that the only reliable method for preventing disease was through quarantine (an unpopular practice at the time). Interestingly, even this early board was transnational, with both American and Cuban physicians cooperating to address the scourge of yellow fever.

The years following the 1878 yellow fever epidemic were marked by the widespread embrace of Louis Pasteur and Robert Koch’s germ theory and with it renewed hope in the possibility of eradicating the pestilence. As John Pierce and Jim Writer have argued, the late nineteenth century was when “medicine transformed itself from an art to a science.” Physicians and the general public moved away from the old miasmatic and humoral theories towards the new idea of germs as disease-causing agents. With germ theory came new unspoken experimental standards which required a higher burden of proof for researchers to meet in order for their work to be accepted by the medical community. As more diseases were studied and

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20 Pierce and Writer, 4.
better understood, yellow fever remained largely a mystery, with few physicians able to meet the new burden of proof.

Despite developments in medical science, physicians and researchers had made little progress in eradicating the disease. In the latter decades of the nineteenth century, physicians around the world proposed potential etiologies—most notably, in 1897, Giuseppe Sanarelli, an Italian bacteriologist working in Uruguay, proposed a specific bacterium as the potential causative agent of yellow fever. Although Sanarelli’s theory was later disproved by the Yellow Fever Commission, the excitement it generated point towards a desire to understand and banish yellow fever. Generally speaking, by the late nineteenth century, most physicians agreed that yellow fever was a “filth disease” caused by fomites—essentially, clothing and bed clothes of an infected person. As such, the solution to yellow fever seemed to be through tackling filth writ large. In Mexico, for instance, efforts to eliminate yellow fever in the 1880s through increased sanitation were spearheaded by the Mexico City Epidemics Commission. However, these sanitary measures did not result in a significant decline in yellow fever cases.

Then, in 1881, a Cuban doctor proposed an alternative yellow fever theory which would eventually halt the disease trajectory. Carlos J. Finlay, a Cuban-born son of immigrants, was educated in France and Germany before attending Jefferson Medical College in Philadelphia. Finlay had been selected to work with the earliest iteration of the American Yellow Fever Commission following the 1878 epidemic, where he met future Surgeon General George

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Francois

The two began collaborating on yellow fever research and became fast friends. Finlay was well known in American circles—educated in Philadelphia and often chosen to represent Cuba at various international health conferences (including the 1881 International Sanitary Conference). It was at this conference that he presented the preconditions for a case of yellow fever that he had developed, suggesting the possibility of an arthropod vector. Later that year, at the Royal Academy of Havana, Finlay outlined his claim in full: “Let us consider by what means the mosquito might transmit the yellow fever.” Noticing a correlation between the warm weather, spawning mosquitoes, and cases of yellow fever, Finlay argued that the insect acted as an intermediary, allowing the disease to spread. Finlay went on to outline his research process in coming to this conclusion and correctly identified the female Aedes aegypti as the specific species of mosquito responsible for the spread. Finlay’s mosquito-vector theory therefore explained some of the abnormalities of yellow fever spread compared with other identified diseases including why nurses working with sickened yellow fever patients were not more likely to develop the disease and why the disease was regionally and temporally fastidious.

Despite the promise of his idea, Finlay’s mosquito-vector theory was largely overlooked until 1900. Many historians have claimed it was prejudice against Latin American scientific research which kept Finlay’s theory from gaining traction for roughly twenty years. However, as an American educated physician who was well known in American medical circles, it is

26 Pierce and Writer, *Yellow Jack*, 77.
unlikely that this alone is responsible for the overlook. Rather, valid criticisms of Finlay’s research methods (namely, the lack of a control group) were largely to blame for the lag. Finlay continued researching between 1881 and 1900, experimenting with exposure to infected mosquitoes, but he was unable to produce a definitive case of yellow fever.\textsuperscript{35} However, Finlay’s primary goal was not to confirm the etiology of yellow fever but rather to determine a means of inoculation through mosquito bites.\textsuperscript{34} Regardless, as one physician wrote, Finlay’s research was “performed in such a loose manner that it was not proper to attach much importance to them.”\textsuperscript{35} The aforementioned new scientific research standards likely marred perceptions of Finlay’s research and its credibility. Additionally, Finlay’s theory was one of the earliest insect-vector etiologies. Thus, when, in the 1890s, bacteriologists Theobald Smith and Ronald Ross proposed similar entomological etiologies for Texas cattle fever (ticks) and malaria (mosquitoes) respectively, Finlay’s theory began gaining more traction.\textsuperscript{36} Regardless, Finlay continued to research, present, and defend his theory at various medical conferences in Latin America and the United States.\textsuperscript{37} In doing so, Finlay laid the groundwork for further collaboration with the many physicians he met.

While Finlay was testing out his mosquito vector theory, American public opinion shifted to support U.S. intervention in Cuba. Initially, these calls were based on humanitarian concerns. In the final decades of colonial rule, the Spanish imperial military instituted the \textit{reconcentración} program, which attempted to move rural Cubans “reconcentrating” them in cities and

\textsuperscript{33} Scholars largely disagree about whether Finlay did indeed produce a case of yellow fever.
\textsuperscript{34} Cirillo, \textit{Bullets and Bacilli}, 116; Finlay believed that there was a minimum threshold at which a mosquito could bite a nonimmune person and produce an extremely mild yellow fever case along with lifelong immunity. Reed’s team later disproved this possibility, but the theory itself was used in creating the yellow fever vaccine.
\textsuperscript{35} Hemmeter, \textit{Master Minds in Medicine}, 302.
\textsuperscript{36} Humphreys, \textit{Yellow Fever and the South}, 35.
exacerbated the existing health risks for poor Cubans. Spanish violence towards Cubans increased writ large in the final decade of the nineteenth century, which also concerned Americans. In addition to these humanitarian worries, many Americans had a vested financial stake in the stability of Cuba as capital assets in the country were worth roughly fifty million dollars. Cuba’s strategic location and access to the Gulf of Mexico also influenced the decision to invade. In fact, the United States had attempted to buy Cuba from Spain on multiple occasions, but by 1898 the country was ready to go to war over control of Cuba. In short, the causes of the US invasion and occupation were multifaceted. Ostensibly the ultimate invasion was triggered by the explosion of the USS Maine in Havana harbor, but other geopolitical, social, and even public health concerns were driving that invasion. At its core, however, the U.S. invasion was a clear instance of American imperialism.

Indeed, as early as 1884, Americans were making the explicit calls to occupy or annex Cuba on the grounds of public health. One Republican presidential candidate even campaigned that year on the promise that if elected he would acquire Cuba and eradicate yellow fever for the good of the American South. By the late 1890s, the calls had grown even more urgent with one Texas newspaper writing, “If annexing Cuba will result in eradicating yellow fever and quarantine, by all means let us annex it at once.” Americans were linking yellow fever with Cuba and urging their government to act accordingly in order to protect American lives and

40 Cirillo, Bullets and Bacilli, 6.
41 Cirillo, 6.
44 “Editorial,” Houston Daily Post, October 13, 1897.
assets from the wrath of the disease. According to Espinosa, public health served as a crucial piece of the “civilizing mission” that most colonial endeavors were grounded in, and the American federal government, bowing to public pressure, determined in late 1897 that intervention in Cuba was necessary for the health of the American populus.\textsuperscript{45} Put simply, Americans were confident that American physicians could solve the problem of yellow fever and thus pushed for invasion.\textsuperscript{46} In this sense, colonialism and the efforts to understand and eradicate yellow fever were inextricably linked; colonialist ideology portrayed American medicine as superior to Cuban medicine and thus suggested that American medicine would solve the yellow fever problem once and for all.

In accordance with public opinion, the United States went to war with Cuba in April 1898 following the explosion of the \textit{Maine}. In his book \textit{An Army for Empire: The United States Army in the Spanish-American War} (1998), Graham Cosmos claimed that the war was an attempt to “challenge European imperialism in the Far East and Latin America.”\textsuperscript{47} But imperialism came at a cost. Despite only lasting a few months, in the Spanish-American War roughly seven times more Americans died of disease than in combat.\textsuperscript{48} Among those were many yellow fever deaths. Indeed, one of the reasons the United States likely won the Spanish-American War in the first place was the toll that yellow fever and other diseases had taken on the Spanish army—a quarter of all Spanish soldiers were said to be ill at any given moment during the war.\textsuperscript{49} Even during the war, American soldiers attempted to respond to yellow fever among troops; for example, on July 11, 1898, General Nelson Miles ordered the entire army camp at Siboney and the surrounding

\textsuperscript{45} Espinosa, \textit{Epidemic Invasions}, 6, 29.
\textsuperscript{47} Graham A. Cosmas, \textit{An Army for Empire: The United States Army in the Spanish-American War} (College Station: Texas A&M University Press, 1998), 29.
\textsuperscript{48} Cirillo, \textit{Bullets and Bacilli}, 1.
village to be evacuated and then burned in an effort to halt the rapid spread of the disease there.\textsuperscript{50} However, these efforts were unsuccessful, and the widespread disease and death during the short war pushed American military institutions to address diseases like yellow fever in Cuba following the war’s end.

Perhaps what most motivated American efforts was the incidence of yellow fever among American soldiers stationed in Cuba. Yellow fever and malaria cases amongst army regiments crippled the American military effort during the war and continued to hamper army action following the war, which inspired action.\textsuperscript{51} As more troops arrived, concern with yellow fever grew. By 1899, the United States stationed over forty thousand troops to maintain control over the island of Cuba, already considered the “crown jewel of America’s small new empire.”\textsuperscript{52} Although other diseases like dysentery and typhoid were more common amongst soldiers, yellow fever inspired unparalleled fear and was not remedied through sanitary measures.\textsuperscript{53} As such, action was warranted and even demanded from soldiers.

With troops in Cuba for the foreseeable future, the trouble of yellow fever became a greater priority for American military medicine. In 1900, following the uptick in yellow fever cases amongst US troops stationed in Cuba, Surgeon General Sternberg, an old friend of Finlay’s from the 1879 commission, tasked Walter Reed with identifying the means of spread of the disease.\textsuperscript{54} Reed, a rising star in military medicine who remains the youngest graduate of the University of Virginia Medical School, was believed to be up to the task.\textsuperscript{55} Alongside Reed, the official members of the Yellow Fever Commission were James Carroll, Jesse Lazear, and Aristides Agramonte — the first two were non-immune American physicians with the latter

\textsuperscript{50} Cosmas, \textit{An Army for Empire}, 257; Cirillo, \textit{Bullets and Bacilli}, 92.
\textsuperscript{51} Musicant, \textit{Empire by Default}, 487.
\textsuperscript{52} Pierce and Writer, \textit{Yellow Jack}, 3, 111.
\textsuperscript{53} Pierce and Writer, 105.
\textsuperscript{54} Lederer, \textit{Subjected to Science: Human Experimentation in America before the Second World War}, 19.
\textsuperscript{55} Pierce and Writer, \textit{Yellow Jack}, 88.
Francois 12

being a Cuban immune physician.\footnote{Kelly, \textit{Walter Reed and Yellow Fever}, 123.} Even the makeup of the commission suggests a willingness from American physicians to work with their Cuban counterparts in order to handle the problem of yellow fever. In creating the commission, Sternberg tasked the group with finding the cause of yellow fever and preventing it, a tall order for a disease that had stymied researchers for most of the nineteenth century.\footnote{“Memorandum, George Miller Sternberg to Walter Reed,” May 29, 1900, in John R. Pierce and James V. Writer, \textit{Military Medicine}, vol. 166 (Ft. Belvoir: Defense Technical Information Center, 2001), 20.} However, the work they would accomplish in Havana, like Finlay’s earlier discovery, would radically reshape the future of yellow fever.

Not long after beginning their work, the commission met with Finlay. In late June 1900, Walter Reed and James Carroll, sailed for Havana from New York on the \textit{Sedgwick} to meet the rest of the commission.\footnote{Pierce and Writer, \textit{Yellow Jack}, 3.} Upon arrival, the group began conducting research. Initially, they were primarily concerned with testing the merits of Sanarelli’s proposed bacilli.\footnote{François Delaporte, \textit{The History of Yellow Fever: An Essay on the Birth of Tropical Medicine} (Cambridge: MIT Press, 1991), 83.} After quickly disproving it though, the Yellow Fever Commission sought a new theory. Sternberg suggested that they explore the insect vector further, perhaps encouraged by the work of his old friend Finlay.\footnote{Delaporte, 90.} In August 1900, Lazear, Carroll, and Reed met with Finlay to learn more about his theories. At the meeting, Finlay supplied the commission with some of his prized mosquito eggs to aid in their research.\footnote{For descriptions of the Yellow Fever Commission’s visit with Finlay, see William Bennett Bean and Heirs of Hippocrates Library, \textit{Walter Reed: A Biography}, Special ed (New York: The Heirs of Hippocrates Library, 1994), 127; Leonard, “Carlos Finlay’s Life and the Death of Yellow Jack,” 448–49; Watts, \textit{Epidemics and History}, 255.}

Using the mosquitoes given to them by Finlay, Lazear and Carroll, began experimenting with the most convenient subjects—their own bodies.\footnote{Reed had left briefly to attend to business in Washington D.C. and would not return until after Lazear’s death.} Lazear, who had special training in entomology from time spent at the University of Rome, handled the bulk of mosquito-related
duties from caring for the eggs to devising a method for targeted bites. Agramonte also aided in the process although, like most Cubans, he was immune to the disease from a mild case in childhood, and thus unable to experiment on himself. Lazear, who as previously mentioned died from the disease, along with Carroll both exposed themselves to infected mosquitoes and experienced yellow fever in the name of science. This early work reflected broader trends in nineteenth-century medical research: autoexperimentation. Many physicians used their own bodies to better understand the experience of disease. For instance, in the Peruvian Andes a medical student named Daniel Carrión intentionally infected himself with the vector borne disease that would later bear his name. Carrión, like Lazear, later died from his autoexperimentation. Historian Susan Lederer deemed the early work of Agramonte, Carroll, and Lazear the “most famous self-experiment in the twentieth century.” In spite of the loss of Lazear, this early self-experimentation strengthened the commission’s belief in Finlay’s theory.

Following the successful yet sorrowful series of self-experimentations, the research team, now only Agramonte, Carroll, and Reed, began experimenting on other subjects. The commission met again with Finlay and continued to correspond with him throughout the research process, according to Finlay’s son. Combining tactics from Finlay’s research and Lazear and Carroll’s experiences, the commission exposed some American soldiers, with consent but not compensation, to infected mosquitoes and others to infected bedclothes (to rule out the fomite

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63 Cirillo, Bullets and Bacilli, 113.
65 Lederer, Subjected to Science: Human Experimentation in America before the Second World War, 20; Agramonte had been exposed to the disease as a child in Cuba and thus had immunity.
67 Lederer, Subjected to Science: Human Experimentation in America before the Second World War, 19.
68 Carlos E. (Carlos Eduardo) Finlay, Carlos Finlay and Yellow Fever, (New York, 1940), 98; José López Sánchez, Carlos J. Finlay: His Life and His Work (Havana: Editorial José Martí, 1999), 373.
theory). However, this quickly became an untenable subject base since widespread yellow fever amongst American soldiers threatened their hold on the country. Native Cubans were almost entirely immune to the disease due to mild cases in childhood, so the researchers then transitioned to using Spanish immigrants as their subjects. In conjunction with the Spanish consul, these immigrants were offered “one hundred dollars in gold… and an additional hundred dollars if [they] contracted yellow fever” by the research team. The physicians obtained explicit consent from these Spanish immigrants, but the financial incentive coupled with the high likelihood of being exposed to the disease naturally meant that many Spanish immigrants were almost eager to participate. Both Agramonte and Carroll played a crucial role in these experiments because they were immune to the disease and could be safely exposed to fomites and infected mosquitoes.

The devised research setup was successful. According to Reed, the Yellow Fever Commission successfully generated seven cases of yellow fever, all from the infected mosquito cohort. Along with Jesse Lazear, three volunteers (an American nurse and two Spanish men) ultimately perished from their exposure to infected yellow fever mosquitoes in the name of science. Both Lazear and Clara Maas, the nurse, were viewed as martyrs in the United States, but the Spanish volunteers remained largely unknown. When yellow fever cases arose, Cuban doctors, including Finlay and other locals like Dr. Díaz Albertini and Dr. Juan Guiteras played crucial roles in confirming cases of the disease, since they were considered “expert[s] in the diagnosis of yellow fever.” According to José López Sánchez, American physicians, often

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69 Lederer, Subjected to Science: Human Experimentation in America before the Second World War, 20.
70 Lederer, 21.
71 Lederer, 21.
72 Walter Reed, The Etiology of Yellow Fever (Havana, Cuba: Dept. de Sanidad, 1901), 26.
73 Lederer, Subjected to Science: Human Experimentation in America before the Second World War, 131.
74 Reed, The Etiology of Yellow Fever, 8; Albert E. Truby, Memoir of Walter Reed: The Yellow Fever Episode (New York: P.B. Hoeber, Inc., 1943), 161.
lacking practical experience working with yellow fever, frequently misdiagnosed the disease or incorrectly cited yellow fever as the cause of an entirely different pestilence.\textsuperscript{75} In doing so, Finlay and his Cuban colleagues lent credibility to the American doctors on the commission by confirming that their research had indeed generated cases of yellow fever.

The findings of the Yellow Fever Commission were swiftly acknowledged. Finlay’s son remembered him bestowing “the warmest praise” on the commission members for their research achievements.\textsuperscript{76} Finlay’s support of the initial research and later the findings suggests a productive working relationship, underscoring the cooperation which made the discovery possible. According to historian Margaret Humphreys, the findings of the commission were rapidly accepted with physicians having “almost unanimous support for the mosquito as the sole carrier of yellow fever.”\textsuperscript{77} Even three decades later, the accolades of the team were praised by American physicians like John Hemmeter:

A scientific and medical discovery so far-reaching in the blessings it bestows upon the human race, that it is not exceeded in this respect by any other discovery in the history of medicine, has been made by… Major Walter Reed, Major James Caroll, Dr. Jesse Lazear…[and] Dr. Aristides Agramonte.\textsuperscript{78}

The recognition of three American doctors and one Cuban doctor, working cooperatively, to banish a pestilence which had long impacted both their countries stands in stark contrast with the one-sided power dynamics of colonialism. In other words, Agramonte contributed to the efforts of the Yellow Fever Commission alongside the American doctors. Moreover, Reed gave explicit credit to Finlay for proposing “the theory of the propagation of yellow fever by means of the

\textsuperscript{75} López Sánchez, Carlos J. Finlay, 361.
\textsuperscript{76} Finlay, Carlos Finlay and Yellow Fever, 108.
\textsuperscript{77} Humphreys, Yellow Fever and the South, 41.
\textsuperscript{78} Hemmeter, Master Minds in Medicine, 297.
mosquito” in a 1901 publication of the commission’s findings. Thus, the process of confirming yellow fever was not conducted entirely by a colonial force but rather in conjunction with Cuban physicians.

Once the team had confirmed the etiology of yellow fever, American public health and government officials began implementing measures to prevent the disease in Cuba. In Havana, it was the United States Army Medical Corps, led by Major William Gorgas, who instituted anti-mosquito policies which ultimately rid the city of yellow fever. In this sense, the use of the U.S. army reflected the continued context of colonialism despite the cooperation that existed within the research field. Gorgas, the chief sanitary officer in Cuba, and the Army Medical Corps began fumigating any buildings linked to yellow fever cases, spraying kerosene into any pools of standing water, and adding mosquito netting to doors and windows. As Finlay had argued two decades prior, mosquito control methods were effective in preventing cases of yellow fever. In 1901, articles in the Chicago Daily Tribune and the New York Times celebrated the “victory” of yellow fever with no cases in Santiago, Cuba, citing Finlay’s theory proven by the Yellow Fever Commission as the cause. Moreover, the anti mosquito measures also reduced malaria on the island. Following 1905, yellow fever never plagued Cuba nor the United States again.

Despite the widespread contemporary cooperation in the Havana research, the American historical memory of this research project has undoubtedly been tainted by early twentieth century nationalism and later U.S.-Cuban relations following the Cuban Revolution of 1956. For

80 Duffy, The Sanitarians, 240.
81 Cirillo, Bullets and Bacilli, 118.
example, in *Victories of Army Medicine: Scientific Accomplishments of the Medical Department of the United States Army* (1943), Edgar Hume characterized the studies as being conducted “by Americans,” while simultaneously acknowledging the native Cubans like Finlay and Agramonte who played pivotal roles in the research. Given the timing of this publication in the midst of the Second World War, Hume’s claims may have been influenced by the surge in nationalism. According to Espinosa, Americans were eager to claim full and sole victory in the war against yellow fever, specifically giving Reed the glory for the discovery. However, Cubans fought to recognize the efforts and contributions of their fellow countrymen. As one Cuban health official wrote in response to an American publication, the article “does not even mention the names of Finlay, Agramonte, and Guiteras.” In doing so, they reasserted the crucial role that Cubans physicians played alongside their American counterparts. By 1911, the *New York Times* had published an article recognizing Finlay’s contributions to the Yellow Fever Commission and giving him “full credit” for the introduction of his theory. The *Washington Post* similarly credited Finlay as a crucial member of the commission in a 1933 article celebrating the centennial of his birth: “Science had never found a way of diagnosing yellow fever until Dr. Finlay.” In this sense, American media recognized the contributions of both Cuban and American physicians to the Yellow Fever Commission research.

Both Reed and Finlay were remembered as national heroes in their respective countries. Finlay was nominated for the Nobel Prize by different physicians seven times (1905-1907 and

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88 “Carlos Finlay’s Memory to Be Honored Here: Doctors to Observe 100th Anniversary of Yellow Fever Expert.,” *The Washington Post*, November 26, 1933.
Then in 1915, Cuba created the Finlay Institute for Investigations in Tropical Medicine to honor Finlay’s memory and work. Similarly, in 1909, Congressional legislation approved the opening of the Walter Reed Army Medical Center which paid tribute to Reed’s legacy on military medicine. A Cuban ambassador even presented Reed’s daughter with the Carlos J. Finlay Order of Merit in honor of his work in Cuba in 1954. This gesture underscores the understanding that the eradication of yellow fever was, as Espinola has called it, “a shared enterprise” between both countries. A painting by Esteban Valderrama in the mid-nineteenth century depicts this collaboration showing Finlay welcoming all four members of the commission to his office while his son looks on (Figure 1). By portraying the Cuban and American physicians as equals, even highlighting Finlay’s knowledge of yellow fever as he is portrayed mid-explanation holding his precious mosquito eggs, Valderrama further underlines the importance of both parties in their ultimate success. In short, Cuba and the United States recognized the contributions of their respective countrymen, but also acknowledged the broader cooperation that was necessary in order to succeed.

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89 Cirillo, Bullets and Bacilli, 120.
91 Espinosa, Epidemic Invasions, 113.
Despite the collaborative legacy of the Yellow Fever Commission, their findings were used to further colonialism elsewhere. In *Launching Global Health: The Caribbean Odyssey of the Rockefeller Foundation* (2010), Steven Palmer argued that the success of the yellow fever eradication efforts in Havana reinvigorated American attempts to apply “sanitary science” elsewhere in Latin America.92 In this sense, one can argue that the success of the collaborative efforts of Cuban and American physicians in the face of colonialism ironically inspired further

colonialism. Notably, the discovery of yellow fever etiology aided in further US imperialism abroad with the construction of the Panama Canal. Knowledge of yellow fever spread and prevention strategies allowed the U.S. Army to better protect its troops abroad while simultaneously touting the guise of disease eradication in places like the Panama Canal Zone. Indeed, colonialism also continued in Cuba as the United States limited Cuban sovereignty with the 1903 Platt Amendment, which allowed further American intervention. In this sense, the Yellow Fever Commission presents a rare example of genuine collaboration in the history of American colonialism in Cuba.

It is overly simplistic to characterize the war against yellow fever as an entirely colonialist endeavor despite the reality of the U.S. military presence in Cuba. Carlos Finlay, Walter Reed, Jesse Lazear, James Carroll, and Aristides Agramonte made lasting contributions to medicine and their work changed the course of the public health response to the disease, and importantly, marked a collaborative effort by American and Cuban physicians to tackle the scourge of yellow fever together.

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93 Cirillo, *Bullets and Bacilli*, 119.
Bibliography

Primary Sources


———. “War on Yellow Fever in Cuba: Army Officers Win a Victory After Battle Lasting Two Years,” August 29, 1901.


The Washington Post. “Carlos Finlay’s Memory to Be Honored Here: Doctors to Observe 100th Anniversary of Yellow Fever Expert.” November 26, 1933.
Secondary Sources


Olivarius, Kathryn. *Necropolis: Disease, Power, and Capitalism in the Cotton Kingdom*. 


